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AIR POLLUTION PUBLICATIONS. A SELECTED BIBLIOGRAPHY 1955-1963

Anna Grossmann-Cooper

Public Health Service
Washington, D. C.

1964

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18

air pollution publications

a selected bibliography 1955-1963

BY
ANNA GROSSMANN-COOPER
STAFF ASSISTANT
DIVISION OF AIR POLLUTION

publications by
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personnel and
other persons and
organizations
receiving Federal
air pollution funds

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
Division of Air Pollution
Washington, D. C.
1964

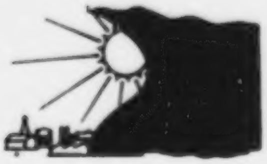

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TABLE OF CONTENTS

Page

PREFACE v

INTRODUCTION vii

BIBLIOGRAPHICAL LISTINGS

SECTION I. Entries listed by first author 1

SECTION II. Entries listed by title 55

SECTION III. Entries listed by subject matter 102

1. Air pollution survey and survey techniques 102
    a. city and county reports 104
    b. state reports 106
2. Atmospheric monitoring network operations 108
3. Bibliographies, directories, meetings, theses, reference works 110
4. Biochemistry 114
5. Chemistry and physics of the atmosphere 116
6. Control devices and methods 129
7. Epidemiology, mortality-morbidity, statistics 130
8. Instrumentation development 132
9. Legislation, administration, economics 135
10. Meteorology 139
11. Physiology - animal pathology 143
12. Physiology - human pathology 145
13. Sampling and analysis - gaseous pollutants 150
14. Sampling and analysis - particulates 151
15. Source and source emission studies 153
16. Standards and criteria 159
17. Vegetation 159

AUTHOR INDEX 161

GEOGRAPHIC LOCATION INDEX FOR SELECTED STUDIES 169

LIST OF JOURNALS AND THEIR ABBREVIATIONS 170

LIST OF ABBREVIATIONS USED IN THIS BIBLIOGRAPHY 174

PREFACE

> *The gods did not enrich man with a knowledge of all things from the beginning of life. Yet man seeks, and in time invents what may be better.*
>
> *Xenophanes*

Although we call air pollution a disease of increasing population, and blame gregarious man--who builds larger and larger cities in smaller and smaller areas--air pollution is a phenomenon that has plagued man all through the ages.

It is fascinating to follow the development of the air pollution literature and to search in historical volumes for older references to this subject. Such a search is rewarding because there is a wealth of information available from the remote past. However, this bibliography is limited to materials published under the auspices of the Public Health Service's Division of Air Pollution since the enactment of Public Law 159 in July, 1955. But it seems appropriate, in a brief foreword, to mention a few of the pertinent historical events and thus pay tribute to those who, far ahead of their times, have contributed to our knowledge of air pollution.

In antiquity, fires were lighted at the city gates, burning what were believed to be contagious, infectious, foul, and noxious matters floating in the air. The Latin poet Lucan (A.D. 39-65) mentions in one of his poems "Stygian vapors tainting the skies with contagion." He refers to a particular area in Italy, Nesis, which is now Nisita, a small island on the Campagna coast near Naples. Another Roman, the Elder Pliny, described this island as emitting fetid vapours in certain places. In the 13th Century Dante in his "Divine Comedy" alludes to this phenomenon occurring in certain regions of Italy, where it was believed to cause disease and death.

The most interesting letters of Pliny the Younger, addressed to the historian Tacitus, are those about his uncle, the Elder Pliny, who was a writer as well as a scholar and admiral. He gives a personal account of the eruption of Mt. Vesuvius, which buried with its ashes Pompeii and Herculaneum in A.D. 79, and in which the Elder Pliny lost his life. The attention of his uncle, who was living at nearby Misenum and in personal command of the fleet stationed there, was called to a cloud of unusual size and appearance. At a distance it was not clear from which mountain the cloud came. It was later found to have been Mt. Vesuvius. "To my uncle, learned man that he was, this seemed important and worthy of closer investigations." And so the Elder Phiny did investigate. He launched warships and in an heroic effort saved many lives from this pleasant seacoast, a resort area on the foot of Mt. Vesuvius, from which there was no escape except by sea. However, while he was at Stabiae to rescue more people, the wind shifted and the ships could not put out to sea again. Pliny tells of the noble behavior of his uncle who, to calm the fears of others, showed the utmost composure. Finally, he rested on the beach where he was overcome by the sulphurous fumes. "Leaning on two slave boys he rose to his feet but immediately collapsed... his breathing was impaired, and his windpipe, constitutionally weak and narrow and chronically inflamed, was obstructed by the heavier fumes. When the light of the day was restored, two days after it had last been visible, my uncle's body was discovered whole and with no signs of violence, his clothing undisturbed."

This episode brings to mind the recent activities of Mt. Irazu in Costa Rica. In December 1963 a Division of Air Pollution team was sent to San Jose, located 25 miles from Mt. Irazu, to consult with the Ministry of Health regarding possible hazards that might develop from activities of this volcano. Irazu's last great eruption was in 1917; it lasted for three years. The current activity started in September 1962, but did not become particularly noticeable until March 1963.

Some dozen centuries after the destruction of Pompeii, we read about protests in 13th Century England against the burning of Newcastle sea coal. Attempts were made to prohibit the use of this new kind of fuel. However, it was not until 1661 that the first book on air pollution appeared, written by John Evelyn (1620-1706). Evelyn, who wrote on all manner of subjects, including forestation, natural sciences, the history of art and numismatics, is best known for his lifetime diary, less intimate than the diary of his contemporary, Samuel Pepys, but full of historical information. His less well-known work "Fumifugium" is of importance to the air pollution literature. Evelyn was a remarkable personality, in many ways ahead of his time. He is the only person we know to have become aware of the filthiness of London and of the contrast between his "Glorious and Antient City" and the countryside, with its farms, gardens, and orchards he loved so well. Britain's National Society for Clean Air, which re-published this book in 1961, valued Evelyn so much that it adopted his portrait as its emblem.

Another personality who played an important role in air pollution abatement in England should not be forgotten: Octavia Hill (1838-1912), the social reformer and pioneer in housing reform. Until that time, background material on smoke abatement was scarce. Inspiration for smoke abatement came from a body called the Kyrle Society, and one of its members was Octavia Hill. According to her biographer, it all started with a visit to Nüremberg in 1880, which "opened her eyes to an English abuse" - much perhaps as his travels to Italy opened the eyes of John Evelyn two hundred years before.

Since the "miasmatic" theory is believed to have originated in the swamps of Italy, it is not surprising that it was an Italian, Marsilio Landriani who in 1776 traveled through Italy to investigate the air. He was the first scientist to make analytical investigations of the atmosphere. His findings were lauded, and hope was expressed that at last it would be possible to have found the key to combat air pollution. Accordingly, the Austrian physician, Andreas Scherer (1785), expressed his joy and anticipated a new clean environment in the not too distant future. At this time the noted German scientist and explorer, Alexander von Humboldt (1769-1859), upon his return from South America, where he undertook investigations of the chemistry of the atmosphere, joined a number of other scientists in their efforts to explore this "vast laboratory called atmosphere." The effect of air pollution on the health of man became of great concern to scientists of the 19th century.

In conclusion, much has been achieved in scientific and legislative fields concerning air pollution since the publication of "Fumifugium," and at an ever-increasing tempo during the past decade. No longer is there any need for us to light fires at the city gates to destroy miasmata. A host of scientists from all scientific disciplines guard our air, probe its content, observe its movement, control sources of pollution, and thereby help to guard our health. And perhaps that wonderful objective of a clean and healthy environment, for which mankind has been longing for centuries, is on the way to realization.

Spring 1964

A.G.C.

INTRODUCTION

This selective bibliography of air pollution publications by Division of Air Pollution personnel and other persons and organizations receiving Federal air pollution funds since the enactment of Public Law 159* covers, with a few exceptions, the years 1955 through 1963. It contains over 1,000 entries, and supersedes PHS Publication No. 979 of the same title.

Two publications prior to 1955 have been incorporated for reason of their value to the air pollution literature and because of the principal author's long association with the Division of Air Pollution:

Air Pollution in Donora, Pa. Epidemiology of the Unusual Smog Episode of October 1948.

Biological Aspects of Air Pollution, an Annotated Bibliography, 1950.

Also listed are pertinent papers published in the January and February 1964 issues of the Journal of the Air Pollution Control Association, in the January 1964 issues of the Archives of Environmental Health, and the American Journal of Public Health.

In order to give the user easy access to this selected material, the bibliography has been arranged into three sections:

SECTION I.

Entries listed by first author:

Entries are arranged alphabetically by first author (all authors are listed), or by first significant word in the title when no author is given.

The articles of each author are arranged chronologically within the journals.

Publications other than journal articles are listed as last items for each author.

SECTION II.

Entries listed by title:

Entries are arranged alphabetically by first significant word of the title, followed by complete entry.

SECTION III.

Entries listed by subject matter:

Entries are arranged under each subject following the same pattern as described under Section I.

Because of the difficulty in classifying certain publications in a single subject category, more than 200 entries have been listed under more than one subject.

*July 1955

The remainder of this bibliography is devoted to a complete author index, an alphabetical list of journal titles and their abbreviations, a list of general abbreviations used in this document, and an index of selected studies based on geographical location.

EXPLANATIONS:

The titles of journals are abbreviated (see list of journals and their abbreviations). The months are abbreviated, except the months of March, April, May, June, and July.

The word or abbreviation for volume (Vol., Tom, Band, Jahrgang, etc.), and for page or pages is omitted from all journals listed. The word "Heft" is used for Microchimica Acta and for one journal in German.

In general, an entry will read as follows: J. APCA 2:146-151 (May) 1963. This indicates that the article appeared in the Journal of the Air Pollution Control Association Volume 2, pages 146-151, May 1963.

In order to make a distinction between journal articles and monographs, conference, or report titles, the titles of articles are printed in lower case, and other titles have been capitalized.

Although every attempt has been made to include in this bibliography all publications for the period 1955 - Dec. 1963, it is likely that some material has been overlooked. The author would appreciate having such omission brought to her attention.

In conclusion, the author wishes to extend her gratitude to Messrs. Roy Head, Herman Gordon, Robert Rosenberg, for their kind counsel, and to Miss Mary Anne Tuck for her able, untiring and cheerful assistance.

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VDI 2090 - Sources of Air-Polluting Substances. 7 pages.
VDI 2091 - Restricting Dust Emission From Forced-Draft Boiler Installations, Capacity 10 Ton/Hr and Over, Hard-Coal Fired with Mechanical Grates. 20 pages.
VDI 2092 - Restricting Dust Emission From Forced-Draft Boiler Installations, Capacity 30 Ton/Hr and Over, Hard Coal-Dust Fired With Dry Ash Removal. 20 pages.
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VDI 2094 - Dust Prevention - Cement Industry. 49 pages.
VDI 2095 - Dust Emission From Induced-Draft Ore-Sintering Installations. 12 pages.
VDI 2098 - Restricting Dust Emission From Natural-Draft Steam Generators, Capacity 25 Ton/Hr and Less, Lignite-Fired With Stationary or Mechanical Grates. 16 pages.
VDI 2099 - Restricting Dust Emission in Blast-Furnace Operation. 19 pages.
VDI 2101 - Restricting Dust Emission From Copper-Ore Smelters. 23 pages.
VDI 2102 - Restricting Emission of Dust From Copper-Scrap Smelters. 13 pages.
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*Paper will be submitted for publication, but due to the death of Dr. Zeidberg, the journal is undetermined at this time.

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VDI 2101 - Restricting Dust Emission From Copper-Ore Smelters. 23 pages.

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SECTION III

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AUTHOR INDEX

Adams, D.F., 1, 2, 3, 82, 83, 84.
Algren, A.B., 1001, 1002, 1007.
Allen, D.R., 590, 712.
Alley, F.C., 23, 24.
Altshuller, A.P., 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 53k, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 111, 148, 183, 184, 185, 186, 415, 462, 491.
Amdur, M.O., 65, 66, 67, 68, 69, 70, 71, 72.
Ameen, J.S., 555.
Anderson, D.M., 75.
Anderson, D.O., 246
Anderson, R.B., 76, 244, 866, 867, 868.
Anderson, R.J., 77, 78.
Anderson, W.A.D., 200.
Andriese, P.C., 426, 427, 428, 430, 431, 432.
Angell, J.K., 79, 80, 618h.
Annis, J.C., 1001, 1002, 1007.
Applegate, H.G., 82, 83, 84.
Asai, R.I. 315.
Ausloos, P., 88, 89, 90, 91, 128, 129, 288, 676, 678.
Austin, N.S., 239.
Austin, R.R., 92.
Avery, M.E., 93.
Awa, A., 94, 727.

Baetjer, A.M., 95.
Baker, R.A., 96.
Balchum, O.J., 97, 98, 99, 100, 101, 466, 928, 929, 1021.
Ball, C.O.T., 101.
Barber, E.D., 102, 103, 483.
Bare, M., 30.
Barlow, P.P., 142, 143, 535.
Barrow, R.E., 835, 836.
Barry, R., 744, 791.
Baughman, P.K., 235.
Baulch, D.M., 104, 105, 513.
Beals, T.F., 985.
Beard, R.R., 106.
Beck, W.J., 110.
Beckett, J.C., 431.
Bell, F.A., Jr., 107, 108, 109, 110.
Bell, G.B., 368.
Bell, W., 193.
Bellar, T.A., 25, 27, 56, 111, 112, 462, 830, 831.
Bender, D.F., 113, 114, 115, 755.
Benson, H.E., 118, 121, 247.
Berlin, A., 969.
Bernal, E., 200, 517.
Bien, G.S., 487.
Bienstock, D., 116, 117, 118, 119, 120, 121, 434, 436.
Bierly, E.W., 333.
Bird, A.N., Jr., 948.
Bixby, W.F., 504.
Black, H.H., 717.
Blakeney, B.S., 122.
Boche, R.D., 123, 124, 125, 667.
Boettger, C.M., 126, 127.
Bohnslav, P.T., 876.
Bonamassa, F., 392.
Booth, S., 127e.
Borhani, N.O., 284.
Borkoswki, R.P., 128, 129.
Boubel, R.W., 130, 644.
Boyer, H.K., 344.
Bradshaw, R.L., 131.
Bradt, P., 567.
Brandt, C.S., 132, 133, 134, 135, 136, 300, 341, 342, 713.
Branscomb, B., 137.
Braverman, M.M., 294.
Breidenbach, A.W., 113.
Brief, R.S., 138, 139, 140.
Brieger, H., 141, 437, 438.
Broder, I., 142, 143.
Bromberger-Barnea, B., 144, 225.
Brooks, H.M., Jr., 327.
Brown, E.B., 389.
Brown, M.F., 112.
Brunol, D., 145, 928, 929.
Brunn, L.W., 118, 247.
Bryan, F.A., 146.
Bryan, J.G., 340.
Bryan, R.J., 147.
Bufalini, J.J., 148.
Burchett, M., 357.
Burk, G., 149.
Burson, J.H., 150, 151.
Burt, E.W., 152, 153.
Burttschell, R.H., 934.
Bush, P.D., 908.
Butrico, F.A., 500.
Bye, W.E., 649, 809.
Byers, D.H., 407.

Cadle, R.D., 694, 695, 1020.
Califano, S., 352.
Calvert, J.G., 154, 155, 156, 157, 158, 205, 214, 308, 309, 413, 834, 924, 925, 955.
Calvert, S., 159, 160, 161, 190, 283.
Camp, W.A., 618.
Caplan, K.J., 898, 908.
Cardiff, E., 220, 222, 224.
Carey, G.C.R., 826, 827.

Carey, J.P., 458, 459, 461.
Carl, C.E., 162.
Carnes, W.H., 163.
Carpenter, S.B., 261, 949.
Carriker, R.C., 62.
Carter, H.S., 472.
Casarett, L.J., 568.
Cassel, K., Jr., 795.
Catcott, E.J., 164, 360, 361.
Cermak, J.E., 165, 542.
Chambers, L.A., 166, 167, 168, 169, 170, 171, 296, 664.
Chase, J.O., 245, 383.
Chernick, V., 93, 225.
Chevalier, C. E., 172.
Cholak, J., 171, 173, 174, 175.
Chrisman, K.F., 176.
Christensen, G.L., 162.
Chueh, Chun-Fei, 299.
Ciocco, A., 177.
Clark, H.E., 465.
Clarke, J.F., 178.
Claydon, C.R., 450.
Clayton, G.D., 179, 180, 181, 803.
Cleland, J.G., 927.
Clemons, C.A., 25, 27, 40, 111, 183, 184.
Cleve, E.A., 471.
Coffey, W.L., 592.
Coffin, D., 394.
Cohen, I.R., 29, 32, 33, 35, 37, 44, 45, 48, 50, 53, 53k, 54, 61, 62, 185, 186.
Collins, R.H., 948.
Comstock, E.G., 187.
Conner, W.D., 189.
Constan, G.L., 190.
Cook, W.A., 179.
Cooper, W.C., 192.
Corbett, W. J., 613.
Corn, M., 66, 193, 712.
Correa, J., 626.
Costantino, G.G., 336.
Coston, D.W., 1011.
Cowan, D.W., 194.
Coykendall, L.H., 817.
Cralley, L.V., 180.
Crider, W.L., 195.
Cripps, J.M., 953.
Cuffe, S.T., 196, 196h.
Culver, W.E., 264, 390.
Cummins, R.L., 317.

D'Amico, A., 794.
Dana, H. J., 3.
D'Angio, C.J., 968.
Danis, A.L., 823.
Darley, E.F., 197, 197b, 615.
Dattoli, J.A., 474.
Davidson, B., 198.
Davis, H.V., 581, 582, 586.
Davis, T.C., 381, 382.
Deane, M., 551, 127e.
DeGroot, I., 1012, 127e.
Deichmann, W.B., 199, 200, 439, 517.
Delia, T.J., 976, 977, 978, 982.
DeMarrais, G.A., 201, 202, 368.
DeMartini, F.E., 203.
Derbes, V., 992.
Dever, D.F., 205
Devlin, J.P., 206, 347, 348, 351, 352, 353.
Dibeler, V. H., 567.
Dickerson, R.C., 404, 855, 858, 859, 860.
Dickinson, J.E., 720.
Dickson, R.R., 207, 207g, 208, 209.
Diggs, D.R., 212.
Dingle, A.N., 213, 263.
Dingledy, D.P., 214.
Dobbs, R.A., 215.
Doerr, R.C., 96.
Dolphin, J.L., 594.
Donaldson, R., Jr., 92.
Dordick, I.L., 216.
Doughty, L.C., 562.
Doyle, G.J., 217, 218, 232.
Dozois, C.L., 219, 383.
Drinker, P.A., 138, 710.
Drolette, B.M., 294.
Dugger, W.M., Jr., 197, 220, 221, 222, 223, 224, 577.
Dunning, J.A., 341, 342.
Dunsmore, H.J., 357.
Dutton, R.E., 93, 225, 259.
Dybicki, J., 97, 98, 99, 100.
Dyksterhouse, G., 1226.

Eckhardt, D.L., 694.
Eddy, R.L., 227
Edelman, S., 701, 702, 703, 704, 705, 946.
Edinger, J.G., 228.
Edmisten, N.G., 1010.
Edwards, F.G., 377.
Ehrlich, R., 229, 665, 666.
Eisele, M.L., 830.
Elbert, W.C., 735, 736, 737, 745, 748, 749, 750, 751, 752, 758, 762, 763, 766d, 773, 780, 781, 782, 786, 787, 792, 797.
Ellerbe, E.B., 977.
Elliott, G.O., 101.
Elliott, J.H., 401.
Ellis, C.F., 230, 383.
Emik, L.O., 326.
Endow, N., 217, 232.
Endriga, R.B., 458, 459, 461.
Epstein, S.S., 234.
Erhardt, C.L., 293, 295.
Estes, F.L., 235, 236, 237, 238, 239, 262, 622.
Eye, M.G., 439.

Fair, D.H., 936.
Fairchild, E.J., 240.
Falk, H.L., 234, 241, 242, 371, 422, 423, 667.
Farber, S.M., 661.
Fatiadi, A.J., 243.
Feenan, J.J., 76, 244, 358, 866, 867, 868.
Ferguson, J., 480, 482, 798.
Ferrin, C.R., 245, 383.
Ferris, B.G., Jr., 246, 850.
Field, F., 292, 293, 294, 295.
Field, J.H., 116, 117, 119, 120, 121, 247, 434, 436.
Finkner, A.L., 250.
Finn, R., 691.
Fisher, G.F., 544.
Fisher, W.M., 326.
Fishman, A.P., 457.
Fitzsimmons, R.V., 350.
Fleischer, J., 250.
Foster, K.E., 176, 698.
Foter, M.J., 169, 171.
Fowler, P.R., 1014.
Fowler, S.L., 616, 617.
Fox, F.T., 103, 251, 549, 735, 736, 737, 745, 751, 766, 780, 788, 793.
Frank, E.R., 482, 490.
Frank, N.R., 851.
Frederick, R.H., 252.
Fredrick, W.G., 179.
Friberg, L., 254, 255.
Friedlander, S.K., 256, 257, 258.
Frisbie, W.W., 540.
Fueschel, R., 282.
Fugman, F.S., 313.
Fueleihan, F.J.D., 259.

Gafafer, W.M., 803.
Galegar, W.C., 260.
Garrison, S., 375.
Gartrell, F.E., 261, 949.
Gast, J.H., 237, 238, 239, 262, 622.
Gatz, D.F., 263.
Gerstle, R.W., 196h.
Gibson, J.R., 264, 390.
Gibson, N.A., 997.
Giever, P.M., 180.
Gifford, F., 265.
Gilkeson, M.M., 470.
Gill, G.C., 333.
Givens, R.G., 579.
Gocke, T.M., 266, 267.
Goetz, A., 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 647.
Goldner, L., 282c.
Goldshmid, Y., 283.
Goldsmith, J.R., 284, 285, 286, 321, 691.
Goodman, J., 332.
Goppers, V., 287, 287a.
Gorden, R., Jr., 372.
Gordon, R., 288.
Gosselin, R.E., 838.
Graber, R.C., 290, 291, 947.
Grant, R.J., 839.
Greenburg, L., 180, 292, 293, 294, 295.
Griswold, S.S., 296, 297.
Grune, W.N., 298, 299.
Gruver, J.T., 156.
Guarneri, J.J., 458, 459, 461.
Guderian, R., 300.
Guillory, W., 302.

Hackney, J.D., 286.
Hagan, J.E., 957.
Hales, J.M., 412.
Hales, J.V., 207g.
Halitsky, J., 304, 304j, 397, 398.
Hamill, P.V., 305, 306, 1019.
Hangebrauck, R.P., 307, 869, 872, 873.
Hanst, P.L., 154, 308, 309.
Harding, C.I., 310, 823.
Harrington, J.B., Jr., 311.
Harris, E.K., 312, 312l.
Harrison, W.K., Jr., 313, 314.
Hartley, A.M., 315.
Hass, G.C., 392, 720.
Hatch, T.F., 498.
Hathaway, J., 316.
Hauser, T.R., 317, 318, 735, 736, 737, 740, 741, 743, 744, 745, 747, 748, 749, 751, 753, 754, 755, 761, 766, 768, 769, 770, 772, 779, 780, 781, 934.
Hausknecht, R., 319.
Havlik, B.R., 320, 480, 489, 493.
Hawkins, J.M., 299.
Haynes, W.P., 247.
Hechter, H.H., 284, 321.
Heggestad, H.E., 149, 989.
Heicklen, J., 322, 323, 324.
Heimann, H., 325, 326, 327, 328, 329, 803.
Heller, A.N., 330, 369.
Helwig, H.L., 580, 691.
Henderson, D., 209
Henderson, J.J., 823.
Hendrickson, E.R., 331, 403, 508, 960.
Hendrix, W.P., 614.
Hengstenberg, F.H., 339.
Henley, E.J., 332.
Herrick, R.A., 871, 876, 877.
Hesselberg, H.E., 212.
Hewson, E.W., 333.
Heyssel, R.M., 101.
Hickey, H.R., Jr., 334, 335.
High, M.D., 122, 336, 511, 620, 809.
Hill, W.H., 338, 339.
Hilst, G.R., 340.
Hindawi, I.J., 341, 342, 343, 813.
Hine, C.H., 344.

Hinners, R.G., 345, 346.
Hisatsune, I.C., 206, 347, 348, 349, 350, 351, 352, 353, 354.
Hitchcock, A.E., 992c.
Hochheiser, S., 355, 356, 357.
Hodous, R., 160.
Hofelt, C., Jr., 670, 671.
Hofer, L.J.E., 76, 244, 358, 866, 867, 868.
Hofreuter, D.H., 359, 360, 361.
Hogan, M.J., 344.
Holma, B., 254.
Holzel, U., 300.
Holzworth, G.C., 362, 363, 364, 365, 366, 367, 368, 541.
Horava, A., 607.
Horsley, R.R., 712, 871.
Horstman, S.W., 356, 369.
Horton, R.J.M., 106, 127e, 142, 143, 213 992, 1025, 1026.
Hosler, C.R., 370.
Hueper, W.C., 371, 627.
Hughes, E.E., 372, 373, 374, 375, 376.
Hughes, K.J., 377, 378.
Humphrey, P.A., 379, 1024.
Hurd, F.K., 613, 614.
Hurn, R.W., 219, 245, 377, 378, 380, 381, 382, 383.
Hyslop, F.L., 407.

Iinoya, K., 150, 151.
Imarisio, J.J., 958.
Ingels, R.M., 959.
Inglett, G.E., 384, 385, 386, 387, 388.
Ipsen, J., 389.
Isbell, H.S., 243.

Jackson, J.K., 854.
Jacobius, A.J., 390.
Jacobs, M.B., 115, 294, 397, 398.
Jacobson, J.S., 992c.
Joardar, S.N.D., 95.
Johnson, H., 756, 757, 759, 781, 783, 788.
Johnson, H.W., 638.
Johnson, J.W.C., 633.
Johnston, D.R., 692.
Johnston, H.S., 302, 322, 323, 324, 391.
Jonakin, J., 818.
Jones, A.R., 140.
Jones, F.V., 441.
Jones, J.L., 217, 218, 232.
Jones, V.H., 630.
Jordan, R.C., 1001, 1002, 1003, 1006.
Josephson, A.S., 393, 394,
Junge, C., 614.
Jutze, G.A., 395, 396, 1028.

Kaiser, E.R., 397, 398, 399, 400.
Kallai, T., 268, 270, 274, 275, 281.
Kanter, C.V., 392, 401.
Kaplan, B.E., 569, 966.
Kassianoff, L., 390.
Kauper, E.K., 366.
Kayne, N., 401.
Kass, E.H., 460.
Katnik, R.J., 974.
Katz, E.J., 672, 674.
Katz, M., 402.
Kay, K., 180.
Keagy, D.M., 331, 403, 404, 405, 406, 624, 940.
Keenan, R.G., 360, 407.
Kenline, P.A., 403, 408, 409, 410, 411, 412, 425, 510, 620, 857.
Kennedy, H.W., 249.
Keplinger, M.L., 199.
Kerr, H.D., 852.
Kerr, J.A., 413.
Kettner, K.A., 197b.
Klein, W.H., 221.
Kleinsasser, T.W., 414.
Kleinschmidt, W.F., 628.
Klingshirn, D.A., 584.
Kolp, P.W., 712.
Konopinski, V.J., 448, 857.
Kopczynski, S.L., 62, 415, 416.
Koplan, J., 234.
Kopp, W.L., 417.
Koppe, R.K., 1, 2, 3.
Kordecki, M.C., 418.
Korshover, J., 419.
Korth, M.W., 420, 421, 715.
Kotaka, S., 426, 427, 428, 430, 431, 432.
Kotin, P., 164, 241, 242, 371, 422, 423, 667, 1014.
Koukol, J., 223.
Kramer, C.L., 424.
Kramer, E., 980.
Kramer, G.D., 425, 855, 860.
Krueger, A.P., 426, 427, 428, 429, 430, 431, 432, 433.
Kruse, R., 837.
Kryder, S.J., 550.
Kurtzrock, R.C., 434, 435, 436.
Kurz, M.E., 264.
Kuwana, T., 638, 820.

LaBelle, C.W., 141, 437, 438.
Ladimer, I., 249.
Lage, L.J., 26, 830.
Lampe, K.F., 439.
Landau, E., 440, 441, 442, 443, 551, 656, 660, 799, 802, 849, 1022, 1023, 1025, 1026.
Lanier, G.E., 199.
Lanz, A., 444.
Larsen, R.I., 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456.
Laurenzi, G.A., 457, 458, 459, 460, 461.
Leach, P.W., 183, 462.
Leavitt, J.M., 406, 463, 464, 540, 937.

Leduce, M.F., 401.
Leftwich, C.I., 573.
Lemmons, T.J., 465.
Leng, J.K., 581, 583, 585, 587.
Leng, L.J., 42, 52, 462, 831.
Lepper, M.N., 958.
Levey, S., 466.
Levine, B.S., 467, 468, 469.
Levy, P.F., 967.
Lewis, R.F., 470, 992
Lewis, R.F., 471.
Lewis, R.P., 472.
Lewis, R.W., 92.
Lias, S.G., 373, 376.
Licking, D.S., 819.
Lieben, J., 75, 473, 474, 563, 927.
Lindstrom, C.A., 511, 825.
Linnell, R.H., 475, 476, 883.
Llacer, A.J., 999.
Lloyd, T.C., 478, 479, 649, 1019.
Lodge, J.P., Jr., 102, 103, 314, 320, 384, 387, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 934, 963.
Long, J.E., 498.
Lords, J.L., 539.
Louisell, D.W., 249.
Ludwig, H.F., 500.
Ludwig, J.H., 212, 501, 502, 503, 504, 505, 556b.
Lunche, R.G., 392.
Lundgren, D.A., 1003, 1006.
Lynn, D.A., 864.

McCabe, L.C., 397, 398.
McCaldin, R.O., 106, 260, 403, 470, 506, 507, 508, 509, 510, 511, 649, 992.
McCammon, C.J., 164.
McCormick, R.A., 312l, 512, 512a, 513, 514, 515, 623.
McCrone, W.C., 516.
McCune, D.C., 992c.
MacDonald, A.J., Jr., 494.
MacDonald, W.E., 200, 517.
MacEwen, J.D., 835, 836.
McEwen, W.K., 344.
McFarland, A.R., 1003, 1005, 1008.
McKee, H.C., 697.
McKee, S.B., 310, 472.
MacKenzie, V.G., 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534.
McLean, J.A., 535.
McLouth, M.E., 536.
McManus, T.T., 578.
McNulty, I.B., 537, 538, 539.
McPherson, S.P., 57, 754, 776.
McQuain, R.H., 540.
McQuary, W.A., 95.
Machta, L., 518.
Maga, J.A., 212, 362, 541.
Mahone, L.G., 983.
Malhotra, R.C., 542.
Malinoski, V.F., 543.
Mallette, S., 912.
Mandl, R.H., 992c.
Maneri, C.S., 543a.
Manganelli, R.M., 944, 945.
Manos, N.E., 544, 545.
Mantel, N., 234.
Marcus, S.C., 649.
Markee, E.H., Jr., 546, 547, 548, 548f.
Markul, I., 241.
Markush, R., 127e.
Marshall, L.M., 103, 251, 320, 549.
Maryott, A.A., 550.
Massey, F., 551, 610, 706.
Massey, M.T., 591.
Maternowski, C.J., 552.
Mathews, D.S., 553.
Matzek, N.E., 2.
Mead, J., 68.
Mecham, R.L., 555.
Medalia, N., 659.
Meeker, J.E., 307, 736, 737, 755, 937, 939.
Mees, Q.M., 556.
Megonnell, W.H., 543a, 556b, 557, 558, 559.
Mehrhof, E., 568.
Mende, T.J., 439.
Mendenhall, A.L., Jr., 730.
Mendenhall, R.M., 560.
Meneely, G.R., 97, 98, 99, 100, 101.
Merrifield, E.S., 259.
Mettier, S.R., 344.
Metzger, K., 311.
Metzler, D.F., 562.
Metzner, F.N., 563.
Meyer, W.E., 44, 564.
Meyers, F.H., 344.
Mielke, P.W., Jr., 194.
Miller, A., 242.
Miller, D.L., 36.
Miller, M.E., 565, 566.
Miller, P., Jr., 349.
Miller, R.R., 387, 739, 740.
Miller, S., 665, 666.
Mills, R.L., 219.
Mohilner, P.R., 1000.
Mohler, F.L., 567.
Monroe, J., 250.
Morgan, W.K.C., 852.
Morken, D.A., 568.
Morrow, J.I., 568, 569, 966, 967.
Morton, J., 440.
Moses, H., 225, 990.
Motley, H.L., 296, 570, 571, 572, 573, 574.
Mudd, J.B., 197, 576, 577, 578.

Mueller, P.K., 579, 580.
Mukai, M., 941, 942, 943, 950, 951, 952, 954.
Murad, E., 89.
Murmall, H., 958.
Murphy, E.M., 118.
Murphy, M.A., 338.
Murphy, S.D., 240, 394, 581, 582, 583, 584, 585, 586, 587.
Myers, J.G., 117, 119.

Nader, J.S., 313, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 710, 711.
Nakada, T., 259.
Nelson, N., 180.
Nestingen, I.A., 605.
Newman, D.W., 537, 538.
Newton, J., 322.
Nielson, S.W., 607.
Niemeyer, L.E., 565, 608, 609.
Noe, J.L., 746, 749, 765, 784, 793.
Northcraft, M., 130, 644.

Oelsner, T., 610
Ogden, E.C., 611.
Ordin, L., 197, 612.
Orning, A.A., 196h.
Orr, C., Jr., 150, 151, 418, 613, 614.
Ortman, G.C., 591.
Osborne, A.D., 615, 616, 617, 637, 639, 820.

Pace, D.M., 618, 956.
Pack, D.H., 79, 618g, 618h, 619, 619i.
Pady, S.M., 424.
Paganini, O., 620.
Palmer, L.F., 439.
Palmer, R.K., 392.
Palmer, R.L., 223.
Palomba, J., Jr., 621.
Pan, C.H., 622.
Panofsky, H.A., 623.
Park, J.C., 624.
Parr, C., 391.
Pate, J.B., 491, 625.
Patterson, R., 626.
Paulus, H.J., 194, 287, 536, 857.
Payne, W.W., 371, 627, 628, 629, 630.
Perkins, N.M., 284.
Perman, R., 631.
Permutt, S., 93, 144, 225, 259, 632, 633, 648.
Perry, W.H., 634.
Peterson, C.L., 580.
Pfaff, J.D., 757, 758, 766d, 777, 778, 790, 794, 798.
Phair, J.J., 635, 826, 827.
Pickard, R.C., 664.
Pitts, J.N., Jr., 615, 616, 617, 637, 638, 639, 820.
Pomerat, C.M., 94, 727.
Pooler, F., Jr., 463, 640, 641, 642, 643.
Popovich, M., 130, 644.
Porter, R., 645. 646.
Portnoy, B., 610.
Potter, R.T., 460.
Preining, O., 270, 273, 279, 280, 647.
Pride, N.B., 648.
Prindle, R.A., 326, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 1019, 1021, 1022, 1023, 1024.
Purdom, P.W., 664.
Purvis, M.R., 665, 666.

Quilligan, J.J., Jr., 123, 124, 125, 667.
Quo, S., 980.
Quon, J.E., 668, 669.

Radcliffe, J.C., 180.
Ranz, W.E., 303, 670, 671, 672, 673, 674.
Rao, M.S., 731.
Raynor, G.S., 611.
Reamer, H.H., 690.
Rebbert, R.E., 88, 91, 675, 676, 677, 678.
Reckner, L., 883.
Reed, J.I., 293, 295.
Reed, W.D., 223.
Renzetti, N.A., 681.
Ricca, P.M., 688.
Rice, P.C., 948.
Richter, G.N., 689, 690.
Rihm, A., Jr., 664.
Riley, R.L., 144, 225, 259, 632, 633, 648.
Ringold, A., 691.
Ripperton, L.A., 23, 24, 692, 693.
Robbins, R.C., 694, 695.
Roberts, A., 442, 696.
Roberts, L.R., 697.
Robson, C.D., 698.
Rogers, S.M., 699, 700, 701, 702, 703, 704, 705, 807, 946.
Rogerson, C.T., 424.
Rokaw, S.N., 706.
Rondia, D., 707.
Rose, A.H., Jr., 139, 420, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 837, 848, 871, 872, 873, 876, 1029.
Rossano, A.T., Jr., 722, 723, 724, 725, 726.
Rounds, D.E., 727.
Rue, R.R., 187.
Rumford, J., 728.
Rustagi, J.S., 729.
Ryazanov, V.A., 468.

Sage, B.H., 689, 690.
Salem, E.S., 633.

Saltzman, B.E., 407, 730, 731, 732.
Salzenstein, M.A., 516, 733.
Sanborn, E.N., 941, 950, 951, 952, 953.
Sant, B.R., 998.
Sargent, F., II., 734.
Sawicki, E., 114, 234, 371, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 766d, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798.
Schafer, L.J., 173, 174, 175.
Schell, N.E., 723, 724.
Schiffman, R., 799.
Schlechter, M.M., 981.
Schlichting, H., Jr., 800.
Schmidt, D.G., 327.
Schneider, W.E., 854.
Schoettlin, C.E., 441, 801, 802.
Schrenk, H.H., 803.
Schuck, E.A., 681.
Schueneman, J.J., 310, 402, 405, 553, 804, 805, 806, 807, 808, 809, 810, 811, 812, 840, 1024.
Schuette, F., 691.
Schulte, H.F., 180.
Schwab, C.M., 28, 30, 60, 61.
Schwartz, C.H., 196h.
Scott, W.E., 475, 476.
Seidman, G., 813, 814.
Sen, B., 815, 816, 997, 998.
Sensenbaugh, J.D., 817, 818.
Seriff, N.S., 295.
Setter, L.R., 131, 819.
Sharp, J.H., 820, 821.
Sharpe, C.E., 339.
Sharrah, J.S., 180.
Sheehy, J.P., 822, 823, 824, 825, 944.
Sheldon, J.M., 535.
Shephard, R.J., 826, 827, 828.
Sheridan, J., 980.
Shimp, J.H., 110.
Sholtes, R.S., 829.
Shropshire, W., Jr., 221.
Shultz, J.F., 358, 866, 867.
Sigsby, J.E., Jr., 111, 112, 462, 830, 831.
Silis, V., 146.
Silverman, L., 556b.
Skoe, B.P., 612.
Slagg, N., 675.
Slater, R.W., Jr., 336, 555.
Sleppy, W.C., 157, 834.
Sleva, S.F., 26, 34, 36, 38, 39, 50, 62.
Small, M., 234.
Smart, R.H., 573.
Smith, A.M., 720.
Smith, H.J., 127.
Smith, J.E., 972, 974.
Smith, K.R., 610.
Smith, R., 664.
Smith, R.F., 433.
Smith, R.G., 180, 708, 835, 836, 837.
Smith, R.P., 838.
Smith, S., 238.
Smith, S.B., 839.
Smith, T.B., 366.
Smith, W.S., 840, 841.
Spaite, P.W., 846, 847, 848, 957, 987.
Speizer, F.E., 849, 850, 851.
Spencer, E.F., Jr., 401.
Spicer, W.S., Jr., 852, 853.
Stahman, R.C., 420, 714, 715, 718.
Stair, R., 854.
Stalker, W.W., 404, 450, 624, 855, 856, 857, 858, 859, 860, 861.
Standiford, N.E., 852.
Stanley, T.W., 735, 740, 741, 742, 744, 745, 746, 748, 749, 750, 751, 752, 756, 757, 758, 759, 761, 764, 766d, 768, 769, 770, 772, 774, 775, 776, 777, 778, 779, 780, 781, 782, 784, 785, 786, 787, 788, 790, 794, 797, 798, 862, 863.
Stead, F.M., 664.
Steigerwald, B.J., 392, 501, 864, 865.
Stein, K.C., 76, 866, 867, 868.
Stenburg, R.L., 712, 719, 869, 870, 871, 872, 873, 874, 875, 875g.
Stephan, D.G., 139, 709, 719, 848, 876, 877, 878, 879, 880, 881, 882.
Stephens, D., 60.
Stephens, E.R., 197, 197b, 883.
Sterling, T.D., 175, 635.
Stern, A.C., 180, 192, 328, 664, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 903p, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 988, 1027.
Stevenson, H.J.R., 273, 278, 647, 718.
Stewart, J.E., 921.
Stewart, W.S., 444.
Stockman, R.L., 331.
Stockinger, H.E., 240, 560.
Storey, P.B., 852.
Stratmann, H., 300.
Strella, G.G., 562.
Subbaratnam, N.R., 924, 925.
Suero, J.T., 259.
Suess, H.E., 487.
Sussman, V.H., 75, 392, 927.
Swan, H.W., 244.
Swann, H.E., Jr., 928, 929.

Tabor, E.C., 166, 169, 312, 371, 395, 625, 634, 819, 934, 935, 936, 937, 938, 939, 1027.
Tang, I., 332.

Tate, G.M., Jr., 356.
Taylor, O.C., 197, 220, 221, 222, 224.
Tebbens, B.D., 669, 940, 941, 942, 943, 950, 951, 952.
Terraglio, F.P., 944, 945.
Terrill, R., 316.
Terry, J.P., 993.
Terzaghi, J., 286.
Tetzlaff, F., 946, 947.
Thomas, A L., 948.
Thomas, F W., 261, 949.
Thomas, J., 669.
Thomas, J.F., 941, 942, 943, 950, 951, 952, 953, 954.
Thomas, J.P., 1016, 1017.
Thomas, M., 422.
Thomas, S.S., 955.
Thompson, C.R., 220, 222, 224.
Thompson, D.J., 177.
Thompson, G.P., 866, 867.
Thompson, H.J., 194.
Thompson, J.R., 618, 956.
Thomson, M.L., 826.
Thornburgh, G.E., 644.
Thuronyi, G., 216.
Todd, W.F., 957.
Toigo, A., 958.
Tolciss, J., 399.
Tow, P.S., 959.
Townsend, H.D., 960.
Toyama, T., 1021.
Tribble, P.E., 382.
Trivedi, J., 1014.
Tsuneishi, N., 269, 271.
Tufts, B.J., 963, 964, 965.
Turino, G.M., 457.
Turk, A., 180, 569, 966, 967, 968, 969.
Turner, D.B., 970, 971.
Turner, M.E., 827.

Ulrich, C.E., 581, 582, 583, 584, 585, 587.
Urone, P., 972, 973, 974.
Uzhov, V.N., 467.

Vander-Zanden, E., 27.
Van Haudt, H., 300.
Van Vliet, A., 130.
Verssen, J.A., 959.
Vihman, E., 494.
Vincent, E.J., 959.
Vingiello, F.A., 976, 977, 978, 979, 980, 981, 982, 983.
Vittori, O., 984.
Von Lehmden, D.J., 307, 869, 872, 873.
Vought, V.M., 474, 991.

Wadu, Y., 348, 353.
Wagner, W.H., Jr., 985, 986.
Walsh, F.X., 991.
Walsh, G.W., 846, 876, 877, 878, 987.
Wanta, R.C., 180, 414, 463, 540, 717, 988, 989, 990.
Warren, W.V., 935.
Wartburg, A.F., 31, 34, 45, 46, 49, 50, 52.
Watts, S.R., 991.
Wayne, W.S., 610.
Wehrle, P.F., 610.
Weickman, H., 279.
Weill, H., 992.
Weimer, R.L., 959.
Weinberger, L.W., 864.
Weinstein, H.J., 249.
Weinstein, L.H., 992c.
Weisburd, M.I., 297.
Weissman, P., 967.
Welch, A.F., 993.
Welsh, G.B., 109, 994, 995, 996.
West, P.W., 997,998, 999, 1000.
Wexler, H., 803.
Wheeler, E.P., 664.
Whitby, K.T., 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008.
Wiese, N.C., 689.
Wiggin, D.C., 510.
Williams, J.D., 1009, 1010.
Williams, R.T., 215.
Williams, T.F., 1011.
Wilson, R.H.L., 661.
Wilson, R.M., Jr., 114, 753, 755.
Winkelstein, W., Jr., 1012, 1013.
Wiseley, D.V., 1014.
Woltz, S.S., 1015.
Won, W.D., 1016, 1017.
Woodward, R.L., 1018.
Woolrich, P.F., 511.
Workman, W., 159, 161.
Wortman, R.L., 556.
Wright, G.W., 478, 649, 1019.
Wright, V.S., 390.
Wromble, R.F., 369, 621.

Xintaras, C., 360, 361, 491, 514.

Yaffe, C.D., 657, 1019a.
Yaffe, I.S., 1020.
Yanez, J., 977.
Yasushi, O., 94.
Yeager, D.W., 173, 174.
Yee, Y.S., 392.
Yoder, J.D., 140.
Younker, W.J., 173.

Zajac, W.W., 979, 983.
Zaraszian, V.L., 586.
Zeidberg, L.D., 840, 1021, 1022, 1023, 1024, 1025, 1026.
Zimmer, C.E., 404, 819, 905, 1027, 1028.
Ziskind, M.M., 992.
Zumberg, J.A., 1029.

Geographic Location Index for Selected Studies

Alabama, 137, 686.
Berlin, N.H., 411.
Birmingham, Ala., 356, 405.
Boston, Mass., 448, 850.
California, 182, 314, 364, 368.
Canada, 683.
Central Valley, Calif., 541.
Charleston, S.C., 409.
Chicago, Ill., 682.
Cincinnati, Ohio., 131, 608.
Colorado, 621.
Connecticut, 510, 842.
Dade County, Fla., 553.
Denver, Colo., 204, 808.
Detroit River Area, 683.
Detroit-Windsor, Mich., 402.
Donora, Pa., 177, 803.
Elmira, N.Y., 12, 606.
El Paso, Texas, 11.
Erie County, N.Y., 1012, 1013.
Florida, 310.
France, 213.
Fresno, Calif., 253.
Georgia, 472.
Hamilton, Ohio, 410.
Hill Air Force Base, Utah, 227.
Huntsville, Ala., 994.
Illinois, 845.
Jacksonville, Fla., 823.
Jefferson County, Ky., 7, 374, 455, 499.
Jordan Valley, Utah, 208.
Kanawha River Valley, W.Va., 87.
Kansas, 424, 562.
Lexington, Ky., 511.
London, 653.
Los Angeles, Calif., 56, 57, 228, 231, 319, 366, 392, 441, 551, 573, 610, 618h, 720, 802, 933, 959.
Louisville, Ky., 7, 374, 455, 499, 642, 722, 724.
Lynchburg, Va., 226, 636.
Minnesota, 85.
Montana, 922.
Nashville, Tenn., 105, 127, 250, 252, 404, 425, 450, 514, 624, 641, 840, 855, 857, 858, 859, 860, 970, 971, 993, 1010, 1021, 1022, 1024, 1025, 1026.
New Hampshire, 246.
New Orleans, La., 470, 471, 992.
New Jersey, 557, 558, 842, 843.
New York City, N.Y., 293, 294, 295, 375.
New York, 543a, 557, 842, 843.
North Carolina, 122.
Oahu, Sand Island, Terr. Hawaii, 717.
Ozark Plateau region, 630.
Pau, S. France, 213.
Pennsylvania, 75.
Phoenix, Ariz., 17.
Pittsburgh, Pa., 357.
Portland, Oreg., 806.
Providence, R.I., 336.
Richmond, Va., 13.
Rocky Mountains, 126, 419.
Sacramento, Calif., 365.
St. Bernard, Ohio, 937.
Salt Lake Valley, Utah, 406.
Southern Calif., 167
South Dakota, 162.
Spartanburg, S.C., 996.
Staten Island, N.Y., 559.
Steubenville, Ohio, 807.
Tecumseh, Mich., 142, 143.
Tennessee, 408.
Texas, 620.
Tokyo-Yokohama, 106, 571.
Tuscumbia-Sheffield, Ala., 686.
Tucson, Ariz., 22, 556.
Tulsa, Okla., 153, 202.
Washington, D.C., 110, 989, 995.
Washington, 331.
Western United States, 363, 566.
Winston-Salem, N.C., 555.

LIST OF JOURNALS AND THEIR ABBREVIATIONS

Air Eng.	Air Engineering
Am. Chem. Soc.	American Chemical Society
Am. Indust. Hyg. A. J.	American Industrial Hygiene Association Journal
*Am. Indust. Hyg. A. Quart.	American Industrial Hygiene Association Quarterly
A.I.Ch.E.J.	American Institute of Chemical Engineers Journal
Am. J. Botany	American Journal of Botany
Am. J. Clin. Path.	American Journal of Clinical Pathology
Am. J. Med.	American Journal of Medicine
Am. J. Nurs.	American Journal of Nursing
Am. J. Physiol.	American Journal of Physiology
Am. J. Pub. Health	American Journal of Public Health
Am. J. Vet. Res.	American Journal of Veterinary Research
**A.M.A. Arch. Indust. Health	American Medical Association Archives of Industrial Health
Am. Paint J.	American Paint Journal
A.P.I.	American Petroleum Institute
Am. Rev. Resp. Dis.	American Review of Respiratory Diseases
Am. Rev. Tuberculosis & Pulmonary Dis.	American Review of Tuberculosis and Pulmonary Disease
Analyst	Analyst
Anal. Chem.	Analytical Chemistry
Anal. Chim. Acta	Analytical Chimica Acta
Ann. Allergy	Annals of Allergy
Appl. Microbiol.	Applied Microbiology
Appl. Spectroscopy	Applied Spectroscopy
Arch. Biochem. & Biophys.	Archives of Biochemistry and Biophysics
Arch. Environ. Health	Archives of Environmental Health
Biochem. Biophys. Acta	Biochemica and Biophysica Acta
Biometrics	Biometrics
Blood	Blood
Botanical Gazette	Botanical Gazette
Bull. Am. Meteorol. Soc.	Bulletin of the American Meteorological Society
Bull. Los Angeles County M. A.	Bulletin of the Los Angeles County Medical Association
Bull. Soc. Chim.	Bulletin de la Societe la Chimie
Bull. Soc. Chim. Belg.	Bulletin de la Societe la Chimie Belgique
California's Health	California's Health
Canadian J. Biochem. & Physiol.	Canadian Journal of Biochemistry and Physiology
Canad. J. Chem.	Canadian Journal of Chemistry
Cancer	Cancer
Chem. Eng.	Chemical Engineering
Chem. Eng. News	Chemical Engineering News
Chem. Eng. Progress	Chemical Engineering Progress
Chem. Processing	Chemical Processing
Chem. Rev.	Chemical Review
Chemist-Analyst	Chemist-Analyst
Chem. & Indust.	Chemistry and Industry

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*Am. Indust. Hyg. A. Quart. changed to: Am. Indust. Hyg. A. J. in Feb. 1958.

**A.M.A. Arch. Indust. Health changed to: Arch. Environ. Health, July 1960.

Clin. Chem.	Clinical Chemistry
Connecticut Med.	Connecticut Medicine
Control Eng.	Control Engineering
Dis. Chest	Diseases of the Chest
Eng. Res. Bull.	Engineering Research Bulletin
Fed. Proc.	Federation Proceedings
Geofisica pura e. applicata	Geofisica pura e. applicata
Gigiena i Sanitaria	Gigiena i Sanitaria
Heating, Piping, Air Condit.	Heating, Piping, and Air Conditioning
Heating, Piping, Air Condit. J. Sect.	Heating, Piping, and Air Conditioning Journal Section
Indust. Eng. Bull.	Industrial Engineering Bulletin
Indust. & Eng. Chem.	Industrial and Engineering Chemistry
Indust. Med.	Industrial Medicine
Indust. Med. & Surg.	Industrial Medicine and Surgery
Indust. Wastes	Industrial Wastes
ISA J.	Instrument Society of America Journal
Internat. Arch. Allergy	International Archives Allergy
*Internat. J. Air Poll.	International Journal of Air Pollution
Internat. J. Air & Water Poll.	International Journal of Air and Water Pollution
Internat. J. Biometeorolog.	International Journal of Biometeorology
J. APCA	Journal of the Air Pollution Control Association
J. Allergy	Journal Allergy
J. Am. Chem. Soc.	Journal of the American Chemical Society
J. A.M.A.	Journal of the American Medical Association
J. ASCE	Journal of the American Society of Chemical Engineers
J. Am. Vet. M. A.	Journal of the American Veterinary Medical Association
J. Am. Water Works A.	Journal of the American Water Works Association
J. Appl. Meteorol.	Journal of Applied Meteorology
J. Appl. Physiol.	Journal of Applied Physiology
J. Appl. Polymer Sc.	Journal of Applied Polymer Sciences
J. Atmospheric Sc.	Journal of Atmospheric Sciences
J. Chem. Physics	Journal of Chemical Physics
J. Chem. Education	Journal of Chemical Education
J. Chem. & Eng. Data	Journal of Chemical and Engineering Data
J. Chromatog.	Journal of Chromatography
J. Clin. Invest.	Journal of Clinical Investigation
J. Colloid Sc.	Journal of Colloid Science
J. Eng. Power	Journal of Engineering for Power
J. Fluid Mechanics	Journal Fluid Mechanics
J. Gas Chromatog.	Journal of Gas Chromatography
J. General Physiol.	Journal of General Physiology
J. Geophysical Res.	Journal of Geophysical Research
J. Infect. Dis.	Journal of Infectious Diseases
J. Inst. Fuel	Journal Institute of Fuel
J. Lab. & Clin. Med.	Journal of Laboratory and Clinical Medicine
J. Med. Chem.	Journal of Medicinal Chemistry

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*Internat. J. Air Poll. changed to: Internat. J. Air & Water Poll., June 1961.

*J. Meteorol.	Journal of Meteorology
J. NCI	Journal of the National Cancer Institute
J. Occupat. Med.	Journal of Occupational Medicine
J. Org. Chem.	Journal of Organic Chemistry
J. Pharmacol. & Exper. Therapeutics	Journal of Pharmacology and Experimental Therapeutics
J. Phys. Chem.	Journal of Physical Chemistry
J. Physiol.	Journal of Physiology
J. Res. Nat. Bureau Standards	Journal Research of the National Bureau of Standards
J. Toxicol. & Appl. Pharmacol.	Journal of Toxicology and Applied Pharmacology
J. Water Poll. Control Fed.	Journal of Water Pollution Control Federation
Lasca Leaves	Lasca Leaves
Lloydia	Lloydia
Madrono	Madrono
Magazine of Standards	Magazine of Standards
Mech. Eng.	Mechanical Engineering
M. Ann. District of Columbia	Medical Annals of the District of Columbia
Mich. Acad. Sc., Arts & Letters	Michigan Academy of Science, Arts, and Letters
Microchemical J.	Microchemical Journal
Mikrochimica Acta	Mikrochimica Acta
Military Med.	Military Medicine
Modern Castings	Modern Castings
Monthly Weather Rev.	Monthly Weather Review
Nubila	Nubila
Pharmacologist	Pharmacologist
Physics of Fluids	Physics of Fluids
Physiologist	Physiologist
Phytopathology	Phytopathology
Plant Dis. Rep.	Plant Disease Report
Plant Physiol.	Plant Physiology
Plant & Power Service Eng.	Plant and Power Service Engineering
Proc. Am. A. Cancer Res.	Proceedings of the American Association for Cancer Research
Pub. Health (British)	Public Health (British)
Pub. Health Rep.	Public Health Reports
Pub. Works Mag.	Public Works Magazine
Quart. J. Roy. Meteorol. Soc.	Quarterly Journal of the Royal Meteorological Society
Record Chem. Progress	Record Chemical Progress
Refuse Removal J.	Refuse Removal Journal
Rev. Sc. Instruments	Review of Scientific Instruments
Revista de la Universidad Industrial de Santander	Revista de la Universidad Industrial de Santander
Rhodora	Rhodora
Saarländisches Ärzteblatt	Saarländisches Ärzteblatt
Safety Maintenance	Safety Maintenance
Sanitarian's J. Environ. Health	Sanitarian's Journal of Environmental Health

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*J. Meteorol. changed to: J. of the Atmospheric Sciences Jan. 1962.

Saturday Review	Saturday Review
Science	Science
Sewage and Indust. Wastes	Sewage and Industrial Wastes
Smokeless Air	Smokeless Air
Spectrochimica Acta	Spectrochimica Acta
Staub	Staub
Talanta	Talanta
Tellus	Tellus
Trans. Am. Nuclear Soc.	Transaction of the American Nuclear Society
Vitalstoffe-Zivilisationskrankheiten	Vitalstoffe-Zivilisationskrankheiten

LIST OF ABBREVIATIONS USED IN THIS BIBLIOGRAPHY

A.	Association
A. I. Ch. E. J.	American Institute of Chemical Engineers Journal
AISI	American Iron and Steel Institute
APCD	Air Pollution Control District
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
Cwb	Contract Weather Bureau
Dept.	Department
Depart. Pub. Health	Department of Public Health
Div.	Division
ed.	Editor
IR	Information Report
ISA	Instrument Society of America
Nat. Acad. Sc.	National Academy of Sciences
NBS	National Bureau of Standards
NBSR	National Bureau of Standards Report
NCI	National Cancer Institute
Nat. Res. Council	National Research Council
PHSB	Public Health Service Bulletin
PHSP	Public Health Service Publication
RATSEC	Robert A. Taft Sanitary Engineering Center
RI	Report of Investigation
Res.	Research
SRI	Stanford Research Institute
TR	Technical Report
USBM	U.S. Bureau of Mines
USDC	U.S. Department of Commerce
USDHEW	U.S. Department of Health, Education, and Welfare
USDI	U.S. Department of the Interior
USNBS	U.S. National Bureau of Standards
USPHS	U.S. Public Health Service
WHO	World Health Organization

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